Copy 3 of 6

18 December 1958

MEMORANDUM FOR: Special Assistant to the Director
for Planning and Development

SUBJECT : U-2 Vulnerability Test, Preliminary Report and Conclusions

1. The vulnerability test of the U-2 against all weather interceptors (F-101 and F-102) and day superiority fighter (F-104) was held at Eglin AFB, Florida, during the period 7-15 December 1958. The final report will be available in approximately 10 days.

2. A single dark blue U-2 was operated out of Laughlin AFB, Del Rio, Texas, and flew 6 sorties to the Eglin operating area. Seventeen separate intercepts were attempted by the F-102, two by the F-101B, and ten by the F-104.

3. During these tests all members of the interceptor team; GCI radar operators and interceptor pilots had the advantage of knowing the altitude the U-2 was operating at, its approximate position and its bearing. In addition all of the U-2 maneuvers were controlled by the GCI site. Further, the interceptors were operating in an environment especially favorable to them in that they were always within a close proximity of their operating base. These factors would not be true in actual operating conditions and would adversely affect their capabilities, were they forced to operate at maximum ra ranges.

E0 12958 3.4(b)(1)>25Yrs
(S)

4. a) The F-102 repeatedly demonstrated a capability to intercept the U-2 at its operational altitude [redacted] using a typical ADC GCI radar vector to position the interceptor for a pass, and employing the airborne radar for the attack. The F-102 successfully solved the fire control problem and release of infra-red seeking and beam rider air-to-air missiles within their respective ranges.

E0 12958
3.4(b)(1)>25Yrs
(S)

b) The speed of the F-102 for successful intercepts varied from 1.15 Mach at 45,000 feet to .91 Mach at 48,000 feet. Any speeds below those indicated, at the altitudes specified, resulted in an unsuccessful intercept. The U-2 was operating at [redacted] Missile release altitude was approximately 50-54,000 feet. The slant range of the missile is approximately 40,000 feet. The U-2 was within missile range.

[redacted]

E0 12958 3.4(b)(1)>25Yrs
(S)

This document contains information referring to Project [redacted]

E0 12958
3.4(b)(1)>25Yrs
(S)

50

5. The F-104 operating at speeds in the 1.8 Mach to 1.91 Mach range at 37,000 feet could zoom climb and maneuver at the U-2 altitude of [redacted] However, repeated radar failures and sidewinder missile failures at altitude left its capability to intercept with these aids an unknown factor. Its capability to visually sight and bring guns to bear on the U-2 is very limited due to the pilots inability to visually acquire the target at a range which would provide sufficient time and maneuvering space to complete a gun firing pass. The single visual sighting by the F-104 of the U-2 without smoke occurred at a range of 4 nm and left insufficient time for the F-104 to maneuver for attack by guns. A total of four intercept attempts were made without smoke. The most probable successful intercept by a day fighter without missiles would be a mid-air collision.

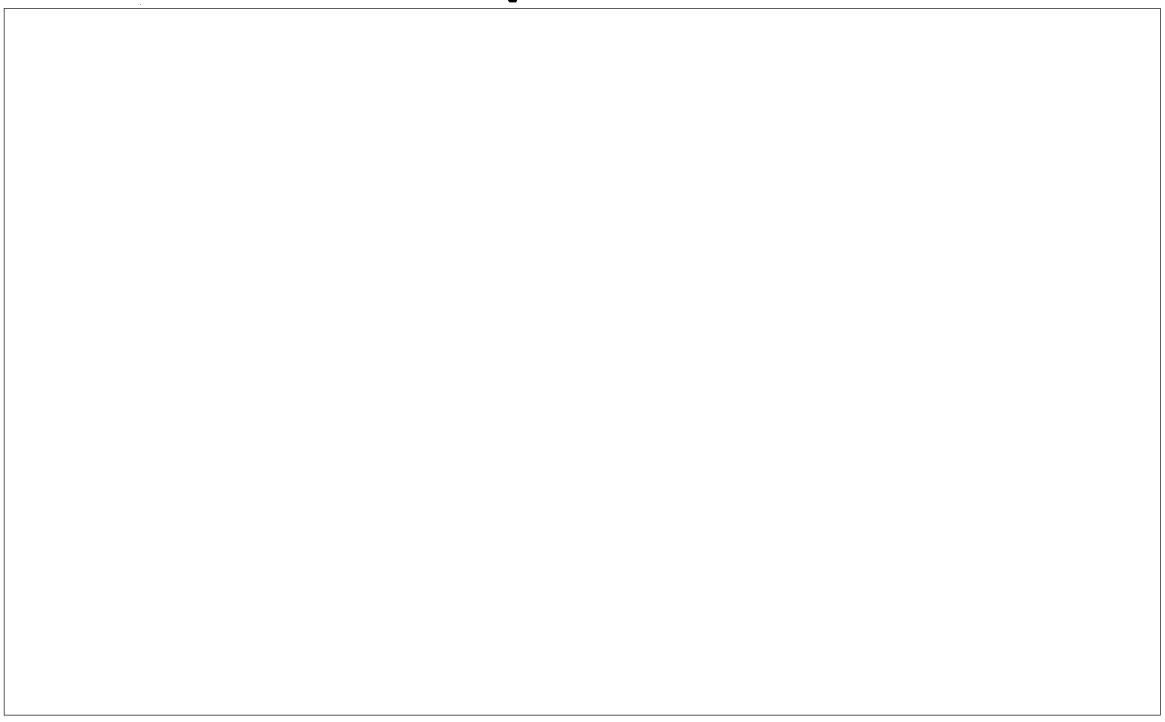
EO 12958
3.4(b)(1)>25Yrs
(S)

6. Two attempts of a radar beam attack were performed by the F-101B. Its armament is the MB-1, a nuclear warhead rocket that is not under control after launch, but relies on a timer to detonate the missile. The U-2 was not picked up by the F-101B radar in sufficient time to solve the fire control problem due to height differential and pilot inexperience in coping with this problem. This problem does not exist in a head on or tail type of intercept.

7. On the final day a special mission was launched for the purpose of determining the effectiveness of the U-2 camouflage paint. A F-102 was launched and vectored into position by GCI radar. The interceptor obtained a radar contact with the U-2, maneuvered into position underneath the U-2 and took colored film with a hand held 35 mm movie camera.

[redacted]

EO 12958
3.4(b)(1)>25Yrs
(S)



EO 12958
3.4(b)(1)>25Yrs
(S)

ARTHUR E. SMITH, JR.
Colonel, USAF
Director of Operations

JFR:rs
1 - addressee
2 - Dep Dir, DPS
3 - Dir D& P, DPS
4 - Ops subj
5 - Ops chron

EO 12958 3.4(b)(1)>25Yrs
(S)